

FIG. 2.

The diagram illustrates a power MOSFET driver circuit. At the top, a bootstrap network consists of a resistor R_{in} and an inductor L_{in} connected to the input voltage V_{in} . This network is followed by a resistor R_f and a capacitor C_f connected to the gate of the MOSFET. The MOSFET's source is connected to ground through a sense resistor R_{sense} . The drain is connected to the load inductor L_I and a diode P_I (anti-parallel to the MOSFET). The output voltage V_{out} is taken across the sense resistor. A current sense amplifier is connected to the sense resistor, featuring a differential input stage with transistors Q_8, Q_9 and resistors R_8, R_9 , followed by a common-emitter stage with transistor Q_{10} and resistor R_{10} . The amplifier's output is connected to the gate of the MOSFET. A bootstrap capacitor C_{diff} is connected between the MOSFET's gate and drain. The MOSFET's gate is also connected to a driver circuit $DRV1$ through a resistor R_{11} . The driver circuit includes a differential input stage with transistors Q_{12}, Q_{13} and resistors R_{12}, R_{13} , followed by a common-emitter stage with transistor Q_{14} and resistor R_{14} . The driver's output is connected to the MOSFET's gate. The MOSFET's drain is connected to the load inductor L_I and a diode N_I (anti-parallel to the MOSFET). The output voltage V_{out} is taken across the sense resistor. A bootstrap capacitor C_{diff} is connected between the MOSFET's gate and drain. The MOSFET's gate is also connected to a driver circuit $DRV1$ through a resistor R_{11} . The driver circuit includes a differential input stage with transistors Q_{12}, Q_{13} and resistors R_{12}, R_{13} , followed by a common-emitter stage with transistor Q_{14} and resistor R_{14} . The driver's output is connected to the MOSFET's gate. The MOSFET's drain is connected to the load inductor L_I and a diode N_I (anti-parallel to the MOSFET). The output voltage V_{out} is taken across the sense resistor.

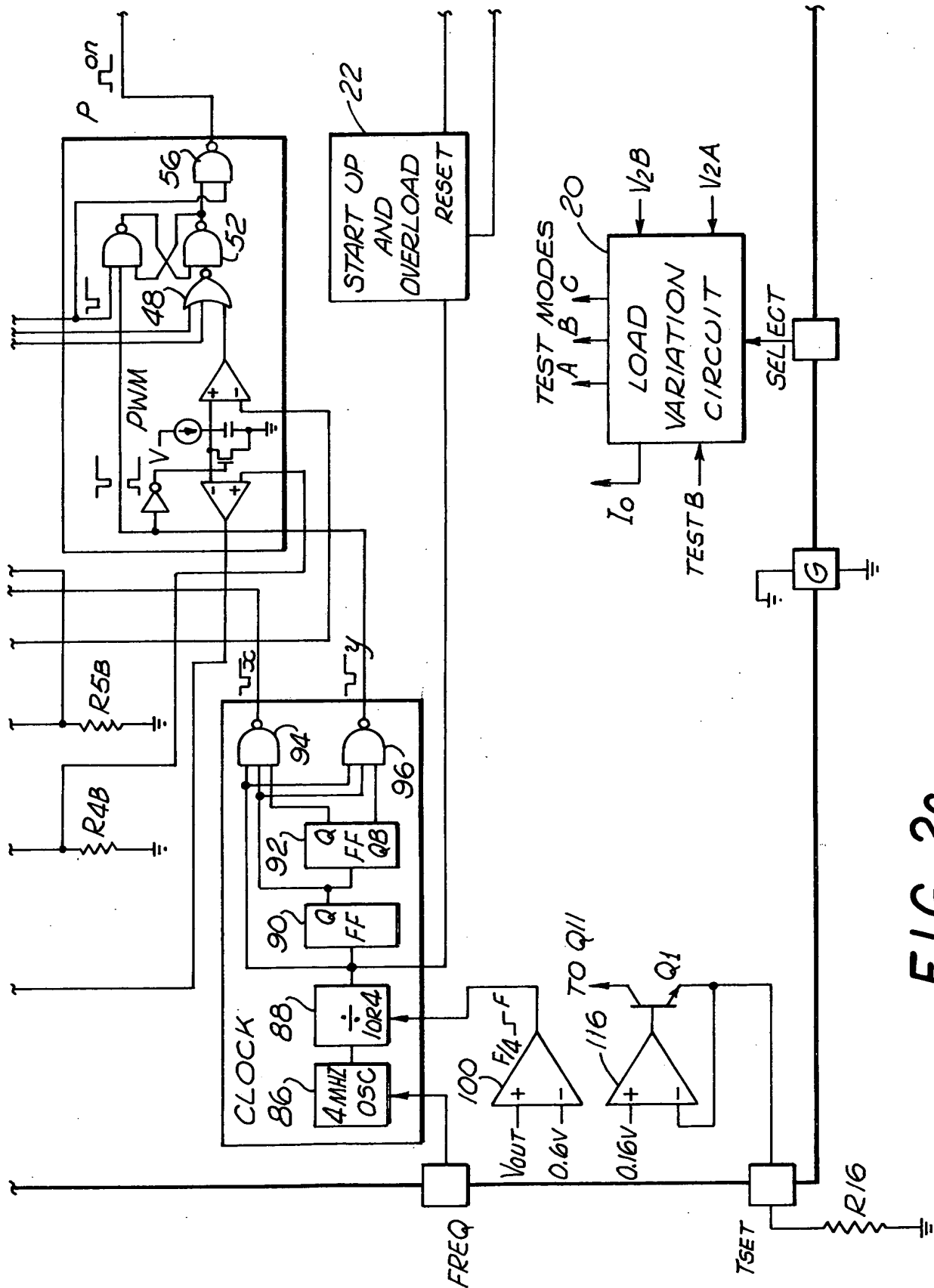


FIG. 2c

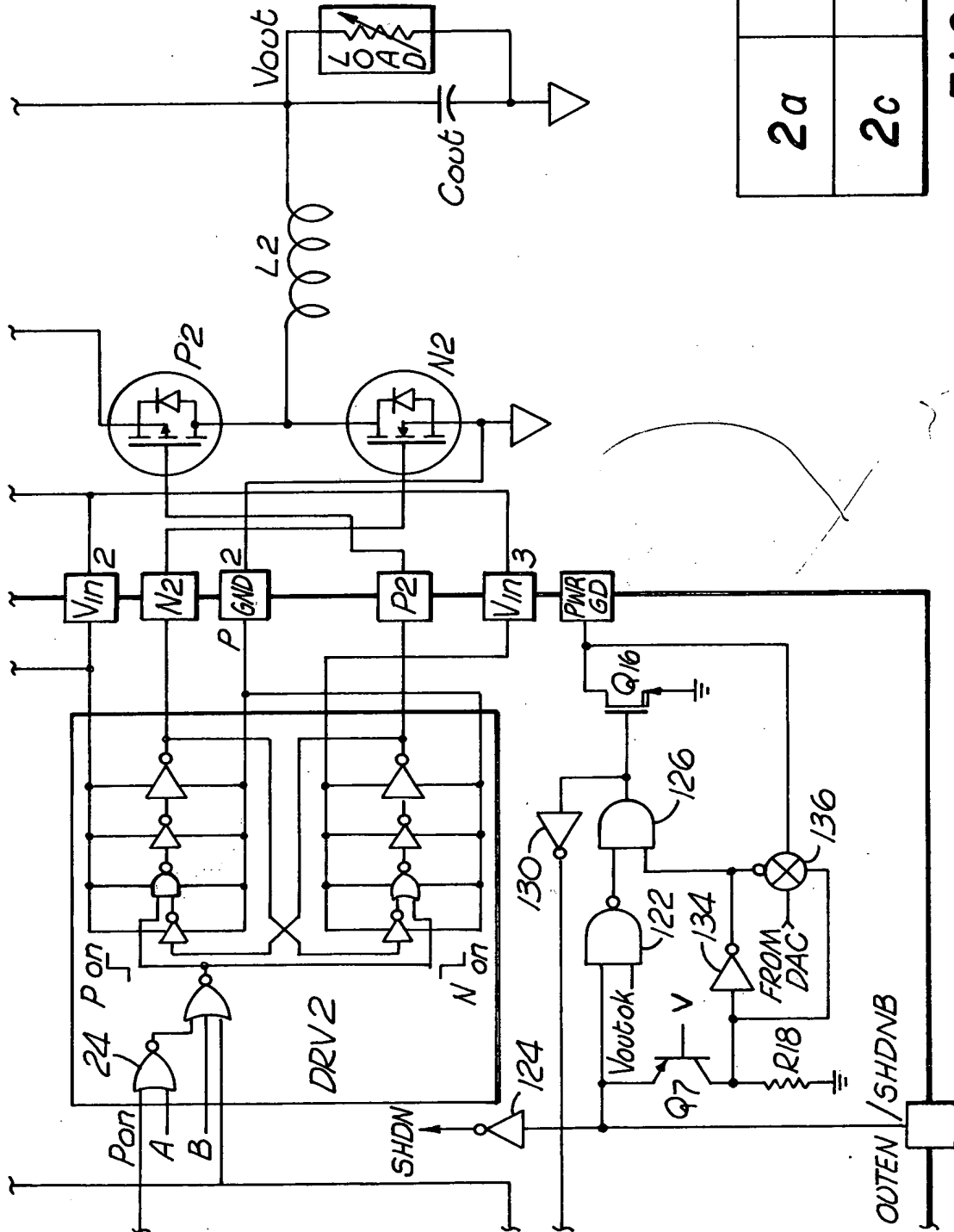


FIG. 1

FIG. 2d